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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WOLFGANG HAUSER, VIKTOR HEITZLER,
and CHRISTIAN JOOS

Appeal 2010-001987
Application 10/685,308
Technology Center 2800

Before HOWARD B. BLANKENSHIP, THU A. DANG,
and ANDREW J. DILLON, *Administrative Patent Judges*.

DANG, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from a Final Rejection of claims 1, 5, 7-11, 13, 17, and 19-28. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

A. INVENTION

Appellants' invention is directed to an electronic component including a leadframe, composed of a platform, at least one electronic member is located on the platform, and a housing that encloses the electronic member and the platform; wherein, at least one support region is provided to support the platform during the fabrication process for the housing and at least one section of the at least one support region projects from the housing (Abstract).

B. ILLUSTRATIVE CLAIM

Claim 1 is exemplary:

1. An electronic component, comprising:

a leadframe;

a platform;

an electronic member located on the platform and connected to the leadframe by electrical conductors; and

a housing which encloses the electronic member and the platform, where first and second support regions each comprising a lobe are provided on the platform on corresponding peripheral portions to support the platform during fabrication of the housing, where the housing has upper

and lower support indentations formed therein that expose an upper surface and a lower surface, respectively, of an outer peripheral portion of each lobe whereby each lobe supported the platform during fabrication of the housing, and at least a portion of the first and second support regions project beyond the housing subsequent to the fabrication of the housing.

C. REJECTION

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Popovic	US 5,247,202	Sep. 21, 1993
Kawanabe	US 5,458,158	Oct. 17, 1995
Song	US 6,197,615 B1	Mar. 06, 2001
Miyaki	US 2001/0010949 A1	Aug. 02, 2001
Totokawa	JP 361095536 A	May 14, 1986

Webster's Encyclopedia of Dictionaries 294 (Ottenheimer Publishers 1981)

Claims 1, 7, and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Totokawa.

Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Totokawa in view of Song.

Claims 9 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Totokawa in view of Miyaki.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Totokawa in view of Kawanabe.

Claims 13, 21, and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Totokawa in view of Popovic.

Claims 17, 20, 22-25, 27, and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Totokawa in view of Popovic and Song.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Totokawa in view of Popovic, Song, and Kawanabe.¹

II. ISSUES

The dispositive issues before us are whether the Examiner has erred in concluding that:

1. Totokawa teaches or would have suggested “a housing which encloses the electronic member and the platform, [having] ... at least a portion of the first and second support regions *project beyond the housing subsequent to the fabrication of the housing*” (claim 1, emphasis added); and
2. the combination of Totokawa and Song teaches or would have suggested “*a transition zone located between the lobe and a remaining portion of the platform, where at least one notch-shaped depression is provided within the transition zone*” (claim 5, emphasis added).

¹ We note that a proposed amendment to claim 19 has been submitted by Appellant in the Reply Brief (Reply Br. 5); however, the Examiner refuses to enter such proposed amendment and finds the Brief to be noncompliant because it was accompanied with an amendment that was not limited to canceling claims (Advisory Action 2). Accordingly, on this appeal, we will only consider claim 19 without the amendment proposed in the Reply Brief. Further, we note that claim 19 depends from claim 18, which has been canceled. We consider this to be an oversight by Appellant, wherein claim 19 is intended to be dependent on non-canceled independent claim 17 from which canceled claim 18 depends.

III. FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

Totokawa

1. Totokawa discloses a method of resin-sealed type semiconductor device having a support plate 2 having U-shaped notches 9; wherein, a thin part 2b of the support plate 2 extends parallel to the thick part 2a of support plate 2 (Figs. 3, 5, and 7; p. 4, ll. 12-15).

2. The support plate 2 is exposed on the outside in the recessed parts 21, 22, 23, and 24 (Fig. 8; p. 5, ll. 7-10); wherein, the thin part of the 2b of the support plate is exposed on the top inner wall of the recessed parts 23 and 24 (Figs. 8 and 9; p. 5, ll. 21-24).

Song

3. Song discloses a semiconductor device package having a die pad 10 including dimples 30 formed along its upper 10a and lower 10b surfaces to enhance the bonding strength between the die pad 10 and the semiconductor device 14 and dimples formed along its leadframe 40 along its upper 40a and 40b and lower 40c surfaces (Fig. 3; col.3, ll. 50-65).

IV. ANALYSIS

Claims 1, 7, and 8

Appellants provide arguments with respect to independent claim 1 (App. Br. 9-11). Appellants do not provide arguments with respect to dependent claims 7 and 8 (App. Br. 11). Accordingly, we select claim 1 as being representative of the claims. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Appellants contend that “Totokawa fail[s] to reveal any structure that extends beyond the housing” (App. Br. 9) because “the ends 2b of the support plate 2 are incapable of projecting beyond the resin body 20 [since] the resin-filled portion A caps the ends 2b” (App. Br. 11).

However, the Examiner finds that “the supports/tabs/lobes (2b) stretch out/ protrude and are exposed past the housing sidewall portions (e.g. holes) as shown in Figure 9, the tabs extend beyond a portion of its housing/package” (Ans. 18). The Examiner notes that “nothing in the claim language precludes the supports from still extending/protruding past the housing while also having sections still covered with encapsulating material” (*id.*).

Although Appellants filed a Reply Brief, we will not consider it for review since the Examiner found the Brief to be noncompliant because it was accompanied with an amendment that was not limited to canceling claims (Advisory Act. 2).

Totokawa discloses a method of fabricating a resin-sealed type semiconductor device having a support plate including a thin part that extends parallel to a thick part of the support plate (FF 1). After fabrication of the resin molding, a portion of the support plate (the thin part) is exposed to the exterior of the semiconductor device (FF 2).

Totokawa's Figures 3, 8, and 9 (annotated) are reproduced below:

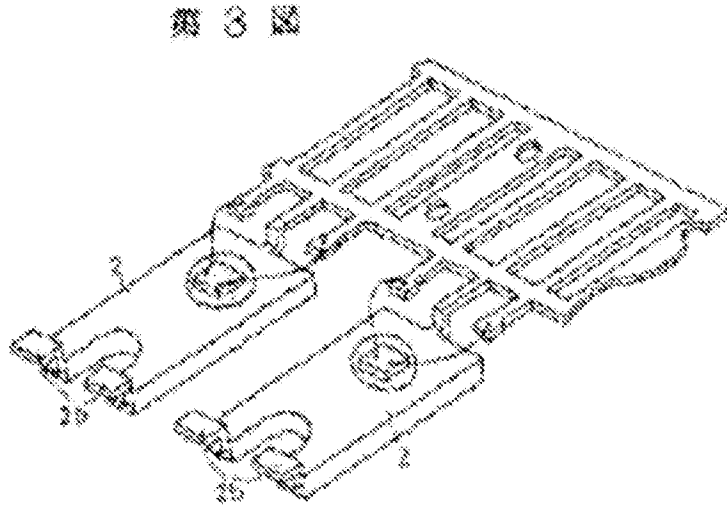


Figure 3 depicts a perspective view of the support plate 2 and lead frame prior to the molding of a resin housing 20; wherein, the support plate 2 includes a thin part 2b (p. 4, ll. 12-15).

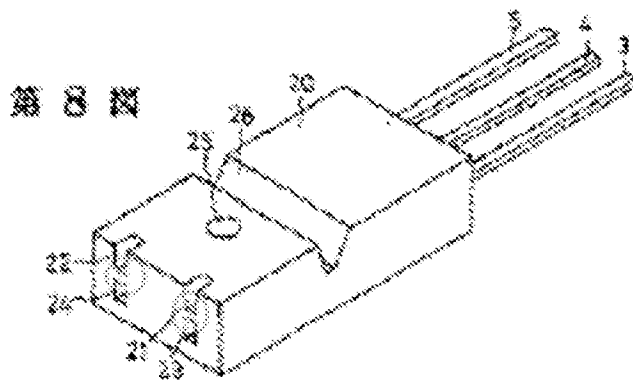


Figure 8 depicts a perspective view of the power transistor having resin housing 20 with recessed parts 21-24 that expose the thin part 2b of the support plate 2 (p. 5, ll. 7-10).

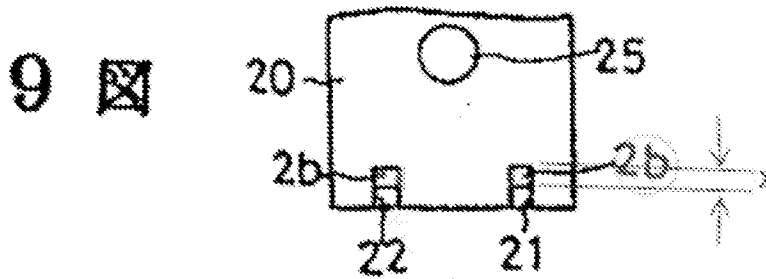


Figure 9 (annotated) depicts a top view of a portion of the power transistor shown in Figure 8 that discloses a portion of the resin housing 20; wherein, the thin part 2b of the support plate 2 extends beyond the housing 20 in notches 21 and 22 (p. 5, ll. 21-24).

We find that the thin parts 2b of platform 2 comprise the first and second support regions located in notches 21 and 22 and that thin parts 2b are thus exposed outside of resin housing 20. We find further that the thin part 2b extends beyond the resin housing 20 by a distance of “x” as we have annotated in Figure 9. That is, we find no error in the Examiner’s finding that “the supports/tabs/lobes (2b) stretch out/ protrude and are exposed past the housing sidewall portions (e.g. holes)” (Ans. 18). We agree with the Examiner that “nothing in the claim language precludes the supports from still extending/protruding past the housing while also having sections still covered with encapsulating material” (*id.*).

Accordingly, we find that “at least a portion of the first and second support regions project beyond the housing subsequent to the fabrication of the housing” (claim 1) reads on Totokawa’s thin part 2b of the platform 2. Thus, we find that Appellants have not shown that the Examiner erred in rejecting claim 1 and claims 7 and 8 depending therefrom over Totokawa.

Claim 5

Appellants contend that Song discloses “the dimples 30 are formed over the majority of the surfaces 10a and 10b of the die pad 10, except for the ends of the of the die pad;” therefore, “according to a fair and proper reading, Song does not disclose or suggest ‘*a transition zone located between the lobe and a remaining portion of the platform*’” (App. Br. 12). Appellants assert that if “Song did disclose such a transition zone, it would be located between the surface covered with dimples 30 and the ends of the die pad, which would ... be devoid of dimples 30” (*id.*).

However, the Examiner finds that “Song was a secondary reference and not relied on for the teaching of a transition zone;” “[r]ather, Song was relied for the limited teaching of forming notches along lead frame elements” (Ans. 20). The Examiner notes that “[Appellants] fail[] to recognize that 40C still includes notches in the same areas that [Appellants] considered a transition zone” (*id.*).

As noted *supra*, Totokawa discloses that the thin parts 2b of platform 2 comprise the first and second support regions of the lobes located in notches 21 and 22 wherein thin parts 2b are thus exposed outside of resin housing 20 (FF 1 and 2). We find that the thin parts comprise a transition zone located between the lobe and the remaining portion of the platform. That is we find that “a transition zone located between the lobe and a remaining portion of the platform” (claim 5) reads on Totokawa’s thin parts 2b.

In addition, Song discloses a semiconductor device package having a die pad and leadframe including dimples formed along their upper and lower surfaces (FF 3). We find that the dimples are notch-shaped depressions.

That is we find that “where at least one notch-shaped depression is provided” (claim 5) reads on Song’s dimples.

Accordingly, we find that the combination of Totokawa and Song at least suggests providing “a transition zone located between the lobe and a remaining portion of the platform, where at least one notch-shaped depression is provided within the transition zone,” as specifically required by claim 5.

Accordingly, we find that Appellants have not shown that the Examiner erred in rejecting claim 5 under 35 U.S.C. § 103(a) over Totokawa in view of Song.

Claims 9-11, 13, 17, and 19-28

Appellants argue that claims 9-11, 13, 17, and 19-28 are patentable over the cited prior art for the same reasons asserted with respect to claim 1 (App. Br. 13-16).

As noted *supra*, however, we see no deficiencies in Totokawa. We therefore affirm the Examiner’s rejection of claims 9 and 11 over Totokawa in further view of Miyaki; of claim 10 over Totokawa in further view of Kawanabe; of claims 13, 21, and 26 over Totokawa in further view of Popovic; of claims 17, 20, 22-25, 27, and 28 over Totokawa in further view of Popovic and Song; and of claims 19 over Totokawa in further view of Popovic, Song, and Kawanabe.

V. CONCLUSION AND DECISION

The Examiner's rejection of claims 1, 5, 7-11, 13, 17, and 19-28 under 35 U.S.C. § 103(a) is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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